

CLAIMS

- 1  
2           1.       A distributed generation system, comprising:  
3           an engine coupled to an asynchronous generator, the generator generating a first AC  
4   output,  
5           an energy storage device for producing a DC output,  
6           an inverter for converting the DC output of the energy storage device into a second AC  
7   output,  
8           an engine controller coupled between the engine and the inverter, the inverter controlling  
9   the frequency of the first AC output to match the frequency of a coupled utility grid.
- 10          2.       The distributed generation system of claim 1, wherein the first AC output is  
11   coupled in parallel to the second AC output.
- 12          3.       The distributed generation system of claim 1, wherein the inverter and the  
13   generator operate simultaneously.
- 14          4.       The distributed generation system of claim 1, wherein the inverter, the generator,  
15   and the utility grid operate simultaneously.
- 16          5.       The distributed generation system of claim 1, wherein the inverter converts the  
17   DC output into a three-phase AC output.
- 18          6.       The distributed generation system of claim 1, wherein the inverter comprises a  
19   PWM inverter.
- 20          7.       The distributed generation system of claim 6, further comprising a filter to smooth  
21   AC output.

1           8.     The distributed generation system of claim 1, further comprising an inverter  
2 controller capable of monitoring a coupled load.

3           9.     The distributed generation system of claim 8, wherein the inverter controller  
4 performs peak shaving.

5           10.    The distributed generation system of claim 8, wherein the inverter controller  
6 performs net-metering.

7           11.    The distributed generation system of claim 8, wherein the inverter controller  
8 senses the zero cross of the coupled utility grid.

9           12.    The distributed generation system of claim 1, wherein the energy storage device is  
10 an ultracapacitor.

11          13.    The distributed generation system of claim 1, wherein the energy storage device is  
12 a battery.

13          14.    The distributed generation system of claim 1, wherein the inverter further controls  
14 the amplitude of the first AC output.

15          15.    The distributed generation system of claim 1, wherein the engine controller  
16 controls at least one of the speed, torque or power of the engine.

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